

VIRGINIA DEPARTMENT OF GAME AND INLAND FISHERIES

**EXOTIC SPECIES PERMIT APPLICATION
TO IMPORT CERTIFIED TRIPLOID GRASS CARP FOR AQUATIC
VEGETATION CONTROL IN PRIVATE PONDS**

(Under Authority of 4 VAC 15-30-40 and §29.1-542 of the Code of Virginia)

Nonrefundable Application Fee: \$10.00

Name of Applicant _____ Telephone # _____

Address _____

Number of Fish to be Stocked _____

(Recommended Size Greater Than 8 Inches Note: New ponds should not be stocked with Triploid Grass Carp.)

Pond Size (Acres) _____

Name of Pond _____

Location of Pond To Be Stocked: **(Provide Detailed Map or Drawing on Separate Page Which Shows Route Numbers/Street Names - Applications Without Maps Will Not Be Processed)**

Town/City, County _____

Name of Stream That Pond Flows Into _____

Triploid Grass Carp Supplier _____

What Percent of Pond Has Aquatic Plants _____

Type(s) of Aquatic Plant Found in Pond _____

Primary Use of Pond _____

Are You Sole Owner of Pond? Yes _____ No _____

If no, do other owners concur with your intention to stock triploid grass carp in this pond/lake?
Yes _____ No _____ (List other owners on back or on a separate sheet of paper.)

Applicant signature _____ Date _____

Name (Please Print) _____

Make check payable to: **Treasurer of Virginia** and return to:
Triploid Grass Carp Program, VDGIF, P. O. Box 11104, Richmond, Virginia 23230-1104
804-367-9288

THIS PERMIT EXPIRES DECEMBER 31st

APPLICATION TO IMPORT TRIPLOID GRASS CARP INTO VIRGINIA

Virginia regulation 4 VAC 15-30-40 requires a permit for importing grass carp into the state of Virginia. Permits are issued only for the triploid (sterile) grass carp and can be obtained from the Department if you take the following steps:

1. Read the enclosed paper to determine if stocking grass carp may be a solution to your problem. Note: New ponds should not be stocked with triploid grass carp. There is no food available for them, and they will not survive.
2. Contact an approved supplier from the attached list to determine the cost and availability of fish. You need to specify that you are only interested in certified triploid grass carp and that certification will be required by this agency.
3. If you intend to purchase sterile grass carp, please fill out the enclosed application and attach a detailed map of the location of pond receiving grass carp. **Failure to provide a detailed map will result in the application being returned to you.** Your application must be sent to the Triploid Grass Carp Program in the Richmond Office (address listed below) at least 30 days prior to your anticipated date of purchase.
4. Permits are issued for the period **January 1 through December 31**, and a non-refundable application processing fee of \$10.00 must accompany your application.
5. **FEDERAL, STATE, OR LOCAL LAWS:** Issuance of a triploid grass carp permit does not absolve the applicant of any responsibilities or conditions of any other Federal, State, or Local laws and regulations, including those that apply to Threatened/Endangered Species.

DGIF will send you the permit. A copy of the permit will be sent to the supplier of your selection. The supplier will notify this agency of date, time, and place of arrival, prior to shipping the fish. This agency reserves the right to examine a sample of any shipment of fish into the state as a condition of the permit.

Triploid Grass Carp Program
VDGIF
P. O. Box 11104
Richmond, VA 23230-1104
804-367-9288

Virginia Approved Suppliers of Triploid Grass Carp:

Arkansas Pond Stockers
P.O. Box 374
Harrisburg, Arkansas 72432
800/843-4748
FAX 870/578-9813

American Sport Fish Hatchery
P.O. Drawer 20050
Montgomery, Alabama 36120
334/281-7703

ByBrook Hatchery
12507 Charles Steward Court
Fairfax, Virginia 22033
703/648-0299

Farley & Farley Fish Farm
17771 Highway 18
Cash, Arkansas 72421
870/477-5530,
FAX 870/477-5530

Fish Wagon
508 Oak Street
Harrisburg, Arkansas 72432
800/643-8439,
FAX 870/578-5480

Frey's Fish Ponds
820 Pine Hill Road
Gulph Mills, PA 19406
888/738-3280

Granite Ridge Fish Hatchery
P.O. Box 97
Van Wyck, S. Carolina 29744
803/285-7597

Hopper-Stephens Hatcheries, Inc.
(Formerly Leon Hill Farms)
989 Johnson Road
Lonoke, Arkansas 72086
501/676-2435, FAX 676-7776

J. M. Malone & Son Enterprises
Box 158
Lonoke, Arkansas 72086
501/676-2800 or 676-6554

Keo Fish Farm
P.O. Box 123, Highway 165 N.
Keo, Arkansas 72086
501/842-2872

Owen & Williams Fish Farm, Inc.
Route 1, Box 2000
Hawkinsville, Georgia 31036
912/892-3144

Perry Minnow Farm
13510 Windsor Boulevard
Windsor, Virginia 23487
757/539-1709,
FAX 757/539-3713

Smith Minnow Farm, Inc.
234 Spencer Lane
Victoria, Virginia 23974
434/676-3003,
FAX 434/676-8226

Southeast Pond Stocking
11090 Highway 421 North
Currie, NC 28435
910/283-1428

Revised 05/24/04

General History

The white amur or grass carp is a rapid growing, plant-eating fish native to the large rivers of eastern China and Siberia. They are one of the largest members of the minnow family and fish as large as 110 pounds have been collected from the Yangtze River in China. A more typical size for Virginia waters would be 20 lbs. Life span typically ranges from 5 to 11 years, but fish over 20 years old have been collected in China.

Grass carp were first brought into the U.S. in 1963 for aquatic plant control research. Many researchers viewed the fish as being a natural weed control agent. However, fears of reproducing populations and reports of environmental damage caused most states to prohibit their use. Major spawning areas are large turbulent rivers. Reproduction outside its native range is rare, but has been documented in the U.S. (lower Mississippi River) and other countries. Therefore most research has been directed towards production of sterile fish. In 1984 a major breakthrough occurred with the production of sterile "triploid" grass carp. These genetic derivatives have 72 chromosomes instead of the normal 48. This is caused by shocking fertilized eggs during incubation either by heat, cold, or pressure to stimulate retention of chromosomes normally expelled during cell division. Because the method used to produce sterile fish is not 100% effective, individual fish must be examined to confirm sterility. The U.S. Fish and Wildlife Service does this testing before the fish are imported into Virginia.

Under good conditions a five-pound fish will eat about five pounds of aquatic plants a day! As fish become larger consumption decreases, and a 20-pound fish may eat only four pounds of plants a day. Feeding rates are temperature dependent and slow down drastically below 60°F. Therefore grass carp are not recommended for trout ponds.

Management Objectives

Nuisance aquatic plants are probably the small pond or lake owner's greatest threat to a productive and enjoyable impoundment. When vegetation becomes over abundant in a pond or lake, it can have adverse impacts. Too much vegetation reduces nesting sites for fish; provides too many hiding areas for small fish, allowing them to overpopulate; hampers navigation of motor boats; restricts swimming areas; and interferes with fishing. If controlled, aquatic vegetation is both desirable and beneficial. Generally, 30-40% plant coverage will result in good fishing. This level provides areas for nesting, feeding, and protection of forage fish and insects. Vegetation produces oxygen, helps balance mineral and nutrient levels, and helps stabilize and prevent sedimentation problems. If your pond or lake is used exclusively for swimming and boating, total plant eradication may be appropriate. However, if fishing is a primary concern, controlling vegetation is more important than eradication.

Controlling plants in your swimming area or boat ramp may require immediate results, and mechanical harvesting or chemicals would be more effective. However, to reduce heavy plant infestations to 30-40% of the surface area, a combination of chemicals for spot treatments, and stocking triploid grass carp for long term control may be appropriate. Getting the desired results is no accident. Planning your treatment and following your plan achieves results!

Stocking Recommendations

Stocking rates for triploid grass carp depend on the amount of aquatic plant control desired, and the type of vegetation to be controlled. Food preferences for grass carp are variable, but studies have documented their dislike for woody-stemmed plants such as lily pads and cattails. Stocking grass carp for control of these nuisance aquatic plants is not recommended. It is also publicized that milfoil, duckweed, and filamentous algae are not readily eaten by these fish. Grass carp are recommended for plants illustrated in Figure 1. Correct identification of the target plant is essential. County Extension agents, Biology Departments at local colleges or universities, or Department of Game & Inland Fisheries fish biologists can help you identify problem aquatic plants. For control (30-40% coverage) stock 8 fish per vegetated-acre and for eradication 16 per vegetated-acre. The latter is the maximum permissible stocking rate, however the Department reserves the right to permit higher stocking rates than this if the total number of fish to be stocked (see formula below) is so low that it would not make any practical sense (e.g., 1 fish). If desired results are not achieved after the second year, additional fish should be added at one half of the initial stocking rate.

Use the following formula to determine the number of triploid grass carp to stock. First, determine the number of acres that are infested with aquatic plants. Do this by multiplying the total acreage of your pond or lake by the percent that you estimate is covered with aquatic plants. Then multiply the result by the number of fish recommended for either control or eradication. For example: If your lake is ten (10) acres in size, 50% covered with nitella which you wish to control, you would calculate the number of fish to stock by multiplying 10 acres times 50% (or .5) times 8 (recommended number of fish to stock per acre for control) or 10 ac. $\times .5 \times 8 = 40$ fish.

An effective program requires monitoring and evaluation. If total plant eradication is your management objective, monitoring the results is straightforward. Your approach is successful if all vegetation is removed. Eventually, more fish will need to be stocked when plant growth exceeds desirable levels. Restock triploid grass carp at 5 fish per vegetated-acre to maintain control, and 11 fish per vegetated-acre to keep the pond or lake devoid of vegetation (or $2/3$ of the initial stocking rate).

Minimizing Escapement

To help protect your investment in grass carp and to help prevent your fish from impacting on other bodies of water it is recommended that your overflow structure be equipped with a barrier (Figure 2). Grass carp are attracted to flowing water and can escape from your pond if there are no barriers at the outflow. Pond owners are responsible for the installation and maintenance of such barriers as well as dam safety.

Revised 12/11/02

Figure 1 Triploid grass carp stocking rates that will have success controlling common aquatic plant problems in Virginia

	Control	Eradication
No. of fish per vegetated acre	8	16

Examples:

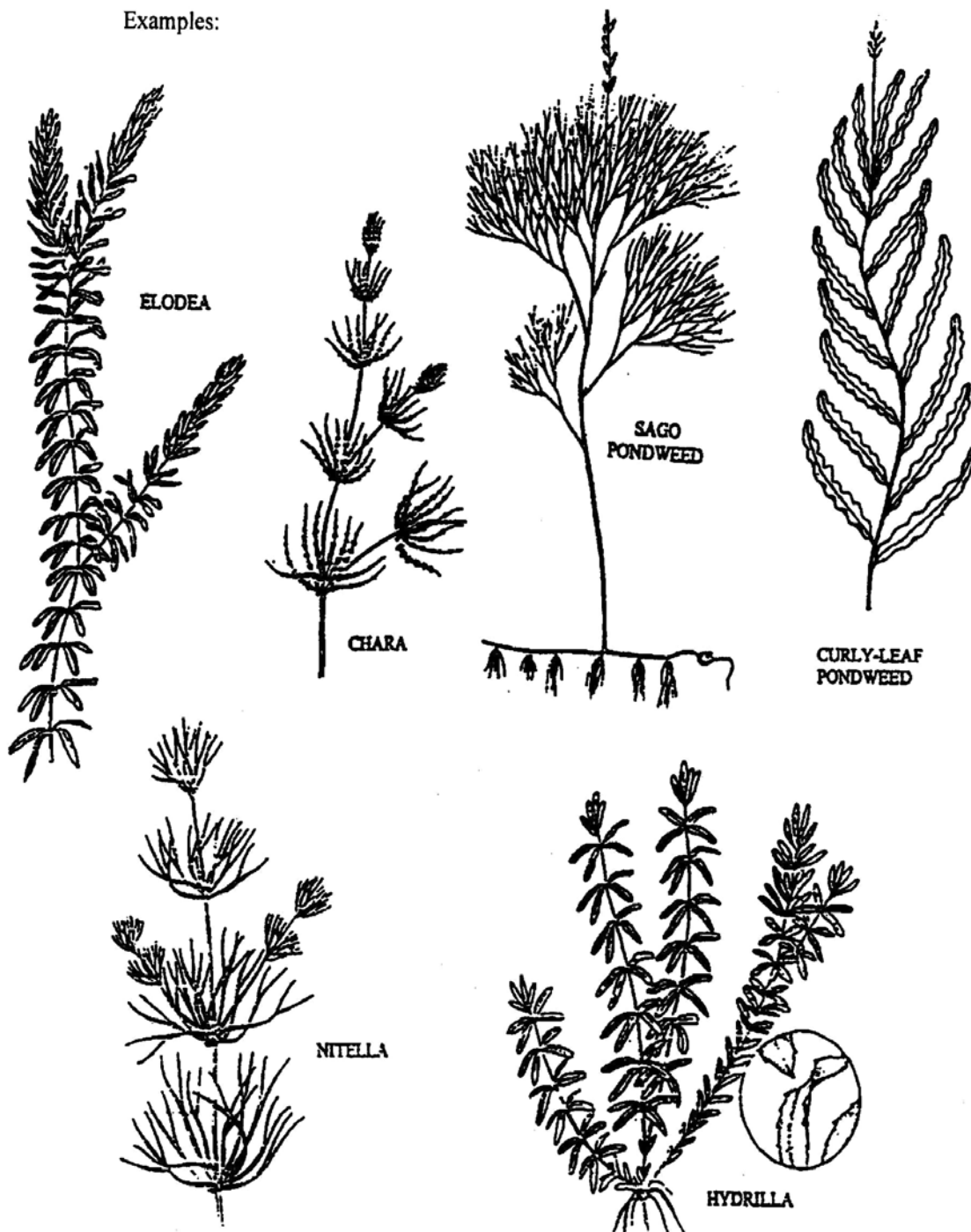


FIGURE 2 FISH BARRIER SUGGESTIONS

Triploid grass carp have behavioral habits that attract them to flowing water. They will escape from your water body via flowing water (i.e. ditch, creek, canal) unless restrained. A permanently anchored structure can be constructed of one of the following materials:

- 1) 3/4" - 1" mesh screening (NO CHICKEN WIRE)
- 2) Series of 3/8" - 1" diameter horizontal metal bars with a 1" - 1-1/2" spacing between bars. Outer framework usually consists of 1/8" - 1/4" flat metal. For easier maintenance and greater longevity, aluminum is recommended.
- 3) Series of 3/8" - 1" diameter horizontal PVC tubing with a 1" - 1-1/2" spacing between bars. Outer framework can be constructed of 2" - 4" diameter PVC tubing.

In order for the barriers to be effective, they should extend a minimum 36" above normal high water level and should be constructed to restrain fish during a 20-year flood. Materials used to construct barriers should be durable enough to withstand environmental elements and be expected to have a life expectancy of 10 years. Barriers should be braced flush against the outfall structure to ensure that there are no gaps present.

TYPES OF BARRIERS

